

IN THE CLAIMS:

1. (Currently Amended) A downhole electric motor having at least three phases and comprising a permanent magnet rotor and a stator bearing phase windings in slots in the stator, each phase winding incorporating a plurality of coils each extending through a respective pair of closed stator slots and surrounding a respective portion of the stator between said stator slots, and adjacent coils of different phases extending through opposite parts of a respective one of the stator slots, said adjacent coils separated by a gap through which cooling fluid may be pumped to cool the coils and a thermally conductive projection, with which the coils are held in thermal contact by virtue of the conforming shape of the slot, extending at least part of the way across the slot.

2. (Canceled)

3. (Canceled)

4. (Previously Presented) A motor according to claim 1, wherein the stator incorporates nine windings extending through nine slots and consisting of three windings for each phase.

5. (Previously Presented) A motor according to claim 1, wherein the stator incorporates twelve windings extending through twelve slots and consisting of four windings for each phase.

6-30. (Canceled)

31. (Previously Presented) A motor according to claim 1, wherein each slot is shaped to conform substantially to the cross-section of the corresponding coils.

32. (Previously Presented) A motor according to claim 1, wherein each of the coils comprises a plurality of coil sections fitted together to form a generally rectangular

cross-section.

33. (Previously Presented) A motor according to claim 32, wherein each of the coil sections is encapsulated within a respective electrically insulating layer.

34. (Previously Presented) A motor according to claim 1, wherein each of the coils is encapsulated within a respective electrically insulating layer.

35. (Previously Presented) A motor according to claim 1, wherein the phase windings comprise preformed open ended conductive loops fitted within the stator slots and closed by subsequently applied conductive parts.

36. (Canceled)

37. (Canceled)

38. (Canceled)

39. (Previously Presented) An electric submersible pump incorporating a downhole electric motor according to any preceding claim.